APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/894,821	06/28/2001	Jonathan W. Haines	S01.12-0711/STL 9608	4141

27365   7590   06/12/2006

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ART UNIT	PAPER NUMBER
2188	

DATE MAILED: 06/12/2006

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PTO-90C (Rev. 10/03)

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Application Number: 09/894,821
Filing Date: June 28, 2001
Appellant(s): HAINES ET AL.

Alan G. Rego
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed December 23, 2005 appealing from the

Office action mailed April 20, 2004.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct. However, after further consideration by the Examiner an updated status of the claims is as follows:

This appeal involves claim 9.

The rejection of Claims 1-2, 10 and 20 has been withdrawn.

Claims 1-8 and 20 are allowed.

Claims 10-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is substantially correct. The changes are as follows: Claims 1-2, 10, and 20 are allowed. The grounds of rejection of claim 9 change as follows:

NEW GROUND(S) OF REJECTION

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Krantz in view of Berning, and further in view of Goodman (provided as evidentiary support that streaming requires sequential access).

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,530,000	KRANTZ et al.	09-2003
6,038,619	BERNING et al.	03-2000
5,659,713	GOODWIN et al.	08-1997

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

NEW GROUND(S) OF REJECTION

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Krantz et al., U.S Patent 6,530,000 B1, in view of Berning et al., U.S. Patent 6,038,619, and Goodwin et al., US Patent 5,659,713 (as evidentiary support that streaming data requires sequential access).

The final rejection included only Krantz in view of Berning. Goodwin has been

added as supplying evidentiary support that, counter to Appellant's arguments, the

description of streaming data requires sequential access as recited.

As to claim 9, Krantz discloses *a method of managing a data buffer* (118, Figs. 1-

4), *comprising receiving a traversal request to traverse the data buffer* (see col. 2 lines

14-16 and 37-43; requests submitted by an accessing unit during its continuous access

duration are considered a traversal request), *arbitrating for ownership of the data buffer*

(see col. 1 lines 48-55 and 63-67; arbitrating for access to the buffer is equal to the

claimed limitation of arbitrating for ownership of the buffer), and *traversing all entries of*

the data buffer, beginning at an entry point in the buffer, corresponding to the traversal

request, prior to voluntarily relinquishing ownership of the buffer (see col. 5 lines 1-20;

all entries corresponding to the request are traversed, since the traversal request is

considered to be all accesses made by an accessing unit during the time the buffer is

available to it, it is noted that the claim states "all entries ... corresponding to the

traversal request", the buffer is voluntarily relinquished when the access time expires, or

when all requests by a unit have been made – col. 2 lines 37-43). See also Krantz

Abstract, Figs. 1-4, col. 1 lines 55-60, and col. 2 lines 5-7. Krantz does not explicitly

disclose that sequential entries are traversed. However, Berning teaches an analogous

disk buffer and control in which when requests for sequential entries are detected,

allows the requester to continue to stream data unabated through the buffer. See

Berning Abstract, col. 3 lines 25-40. This is desirable because it improves overall data

throughput of the buffer, preventing an unrelated request from possibly halting the high-

speed stream. See Berning col. 2 lines 64-67 and col. 3 lines 8-24. The buffer of

Berning is sequentially accessed (see Berning col. 5 lines 30-43). Goodwin et al., col. 2

lines 29-33 is cited as evidence that streaming of data is defined as sequential

accesses. The teaching of allowing the traversal of sequential entries unabated as

applied to Krantz is equal to the recited traversal of sequential entries prior to de-

arbitrating. Thus it would have been obvious to one of ordinary skill in the art at the time

of the invention to traverse sequential entries, because this was a known means of

improving buffer throughput.

(10) Response to Argument

The rejection of claims 1 and 2 was withdrawn because after further review,

Examiner could not identify in the references an item equal to the recited traversal

component, that receives a requested traversal, arbitrates for ownership of the buffer,

and traverses sequentially mapped entries in the buffer. The rejection of claim 10 was

withdrawn because after further review Examiner could not identify where the

references disclosed receiving a buffer starting address and number of locations to

complete a traversal. The rejection of claim 20 was withdrawn because Appellant's

arguments at page 8-9 of the brief make it clear that the means-plus-function language

of this claim includes the structure at Figure 2 including arbitrated buffer and traversal

component, and receiving, arbitrating for ownership, and traversing sequentially

mapped entries.

The Examiner previously contacted the Appellant's attorney to suggest combining claim 9 with either claim 10 or 11, but was informed that Appellant wanted to proceed with the appeal on claim 9.

It is first noted that while Appellant apparently only makes two brief arguments with regard to claim 9 (at page 8 of the brief), other arguments made, as may be applicable to claim 9, are also responded to herein.

Appellants state at page 5 last full paragraph of the brief that the final Office action stated that "Krantz does not disclose a traversal component configured to traverse sequentially mapped entries in an arbitrated buffer memory". A "traversal component" and "sequentially mapped" are not required by claim 9. It is noted that the term "traversal" itself does not imply sequential or contiguous entries. Also, "traversal request" does not signify whether it may be a single request, or a plurality of requests. Appellant's own statements at page 2 last full paragraph of the brief describe a traditional traversal that must re-arbitrate for access to each next location, and thus consequently provides support that a "traversal request" may be properly interpreted as a plurality of access unit requests. Therefore, Krantz teaches traversing entries in an arbitrated buffer memory, and only lacks an explicit teaching that these entries are "sequential", this teaching provided by Berning as described elsewhere herein.

Appellants state at page 6 first full paragraph of the brief that Berning deals with consecutive requests to the disk, not to the buffer. Examiner agrees that Berning deals with consecutive accesses to the disk, but as further argued hereinbelow maintains that Berning also deals with consecutive accesses to the buffer (see Berning col 5 lines 30-

43, where it is described that data transferred from the buffer is respectively sequentially addressed).

Appellants state at the paragraph spanning pages 5-6 of the brief, that the Examiner's prior statement that the "teaching of allowing the traversal of sequential entries unabated as applied to Krantz is clearly equal to the recited traversal of entries prior to de-arbitrating" is incorrect. First, it is noted that Krantz provides for a continuous access duration for a particular accessing unit (as noted by Appellant at page 4 third paragraph of the brief). This access duration provides a plurality of buffer accesses prior to de-arbitrating, which may be considered a traversal. Although it is entirely possible (and if efficiency is of any concern whatsoever, probable) that this duration of accessing a plurality of buffer locations might be to sequential locations, Krantz does not explicitly state this. Berning teaches that in accessing sequential locations on a disk, "a circular buffered data path between a cyclic tracked medium and a device interface can continue data streaming unabated" (see Berning col. 7 lines 1-7, which further recognizes the possibility not unlike Appellants own indication of the prior art at pages 1-3 of the specification, that the path would need to be disabled and reconnected for a random sequence of requests, if data was not streamed unabated). Any streaming of data through a buffer unabated is a traversal of the data of the stream prior to de-arbitrating.

In the paragraph spanning pages 6-7 of the brief, Appellants state "the description that this data is 'streamed' through the buffer necessarily includes that sequential data is consecutively accessed in the buffer" is a conclusory statement, and

an inherency argument. Streaming of data through a buffer means sending the data in one end and out the other, *in order*. It is noted that it was in response to the final rejection that Appellants first argued that the statement "streaming data through a buffer means data is consecutively accessed" is an inherency argument. As evidence of the meaning of streaming data through a buffer, Examiner herein cites column 2 lines 29-33 of Goodwin et al., US Patent 5,659,713, which explicitly states that a stream is sequential reads. To assume that Berning did not consecutively access sequential data in the buffer would be a misinterpretation of what it means to stream data through a buffer. That is, regardless of whether data streamed through a buffer causes access to physically contiguous entries of the buffer (although it would be the easiest method, since storing of stream data to non-contiguous entries would require more complex mapping than just storing the next data of the stream to the next available buffer entry), it certainly requires accessing the buffer in the sequence of the stream both for writing to the buffer and for reading from the buffer, and thus traversing sequential entries as recited. However, even Berning states at col. 5 lines 30-43 that data is transferred to and from the buffer at respectively sequentially addressed locations. It is clear that the buffer of Berning not only traverses all sequential entries of a request because it sequentially steps through data items of the stream, but that it accesses physically sequential entries in the buffer by incrementing the address. Either interpretation may be used to read on the recited traversal of sequential entries corresponding to the request. Therefore, the Examiner maintains that this teaching (of Berning) of improving a sequential disk access performance, by unabatedly sequentially accessing data in a

buffer, in combination with the teaching (of Krantz) of providing an access "window"

duration for a buffer, teaches the invention recited in claim 9.

Appellants argue at page 8 of the brief regarding claim 9, and also in the last

paragraph at page 9 regarding claim 20, that "Krantz teaches or suggests nothing about

accessing entries in the data buffer". This statement is incorrect, the first sentence of

the Abstract of Krantz describes arbitration of access to a buffer. Also, previously cited

Krantz col. 5 lines 1-20 describes granting access to the buffer for requesters for

specified access cycles. Any requester granted access accesses entries of the buffer.

Appellants argue at page 8 of the brief regarding claim 9, and also in the last

paragraph at page 9 regarding claim 20, that "Berning teaches or suggests nothing

about traversing all sequential entries in the data buffer". It is noted that claim 9 does

not require traversing "all sequential entries in the data buffer", only all sequential

entries in the data buffer *corresponding to the traversal request*. As previously noted

hereinabove, a "traversal request" as recited might be considered a single access

request, or a plurality of access requests, and therefore since any access requests that

actually access the buffer may be considered the recited "traversal request", all entries

corresponding to the traversal request are by definition traversed. Since the data is

streamed in Berning, the requests are sequential.

The argument at page 8, first full paragraph of the brief, that inherency cannot be

used as a basis for an obviousness rejection cites *In re Sporman* as stating "That which

may be inherent is not necessarily known." The case states that the Patent Office must

produce a reference showing what an artisan would have known, and that obviousness

cannot be predicated on what is unknown. It is believed that this requirement has been

met. Goodman shows, as explained hereinabove, that an artisan would have known

that streaming data through a buffer involves consecutive access of sequential entries

in the buffer (that a stream is sequential reads of sequential addresses).

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the

Related Appeals and Interferences section of this examiner's answer.

This examiner's answer contains a new ground of rejection set forth in section **(9)**

above. Accordingly, appellant must within **TWO MONTHS** from the date of this answer

exercise one of the following two options to avoid *sua sponte* **dismissal of the appeal**

as to the claims subject to the new ground of rejection:

(1) **Reopen prosecution.** Request that prosecution be reopened before the

primary examiner by filing a reply under 37 CFR 1.111 with or without amendment,

affidavit or other evidence. Any amendment, affidavit or other evidence must be

relevant to the new grounds of rejection. A request that complies with 37 CFR

41.39(b)(1) will be entered and considered. Any request that prosecution be reopened

will be treated as a request to withdraw the appeal.

(2) **Maintain appeal.** Request that the appeal be maintained by filing a reply

brief as set forth in 37 CFR 41.41. Such a reply brief must address each new ground of

rejection as set forth in 37 CFR 41.37(c)(1)(vii) and should be in compliance with the

other requirements of 37 CFR 41.37(c). If a reply brief filed pursuant to 37 CFR

41.39(b)(2) is accompanied by any amendment, affidavit or other evidence, it shall be treated as a request that prosecution be reopened before the primary examiner under 37 CFR 41.39(b)(1).

Extensions of time under 37 CFR 1.136(a) are not applicable to the TWO MONTH time period set forth above. See 37 CFR 1.136(b) for extensions of time to reply for patent applications and 37 CFR 1.550(c) for extensions of time to reply for ex parte reexamination proceedings.
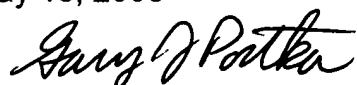
For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Gary J. Portka

Primary Examiner

May 15, 2006

A Technology Center Director or designee must personally approve the new ground(s) of rejection set forth in section (9) above by signing below:

Jack B. Harvey

Director, TC 2100

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